

## **Historic, Archive Document**

Do not assume content reflects current scientific knowledge, policies, or practices.



May 1935

## THE CONSTRUCTION OF A CONVENIENT TYPE OF EXPERIMENTAL PLOT CAGE

By Ralph Schopp, Division of Truck Crop and Gardens Insects,  
Bureau of Entomology and Plant Quarantine,  
U. S. Department of Agriculture

A convenient type of experimental plot cage has been devised by constructing it with sloping sides so that a number of cages may be nested together in storage. The size of the cages may be varied to meet the requirements of their purpose. Those described here were used to cover plots 46 inches long and 36 inches wide. At the bottom the cages were 54 inches long and 44 inches wide, while at the top they were 46 inches long and 36 inches wide. The sloping sides were approximately 18 inches high.

The cages (figs. 3 and 4) were made of two side and two end sections fitted together to form a truncate pyramid. Each section (figs. 1 and 2) consisted of a top piece connected at the ends to a longer bottom piece by two similar corner pieces. The resulting quadrilateral figure, with parallel top and bottom and with the sides converging toward the top, was provided with a diagonal brace to hold the angles true.

For each section five pieces of lumber were used; top and bottom pieces of cedar, 1 by 2 inches; two corner pieces of fir,  $\frac{1}{8}$  by 3 inches; one diagonal brace of cedar,  $\frac{1}{4}$  by 2 inches. The lengths of these were as follows:

	Side section (Inches)	End section (Inches)
Top	46	$34\frac{1}{2}$
Bottom	54	$42\frac{1}{2}$
Corner	18	18
Brace	47	39

The side sections (fig. 1) were made with the ends of the top piece flush with the outer edges of the corner pieces. The bottom piece extended beyond the corner pieces the thickness of the end bottom piece ( $\frac{3}{4}$  inch) plus the thickness of the corner piece ( $\frac{3}{8}$  inch), a total of  $1\frac{1}{8}$  inches.

In the case of the end section (fig. 2) the corner pieces extended laterally past the end of the top piece of the end section the thickness of the top piece of the side section plus the thickness of the corner piece, in this case also  $1\frac{1}{8}$  inches. The ends of the bottom piece of the end section were made flush with the outer edges of the corner pieces.

Assembling the sections was made easy by drawing a diagram on the work-bench top. The parts were fitted to the diagram and nailed together so that the top and bottom pieces were on opposite sides of the three connecting pieces. These connecting pieces were fastened to the inside of the bottom piece and the outside of the top piece. The diagonal brace was left until the end pieces had been fastened, and the angles were set correctly when this piece was placed.

- 2 -

The sections, made according to these directions, fit neatly together, with the top pieces inside and the bottom pieces outside the corner pieces. This arrangement is essential, as it has much to do with the cages nesting together. Double-twisted diagonal trusses of 12 B. and S. gage wire in the top of the cage held the angles of the cage square and supported the top cover. The cages were covered with cheesecloth. Wire screen might be used if desired.

The cages described here have a number of advantages over the type usually constructed. These cages may be stored in a small floor space (fig. 5). They are light in weight and can be easily handled by one man. They are unusually strong and rigid. The sloping sides with the reinforcing braces and wire trusses make them as strong as much heavier cages of the usual construction. The wide base in proportion to the area of the sides adds to their stability. There is less likelihood of their being upset by wind.

SIDE SECTION OF THE CAGE

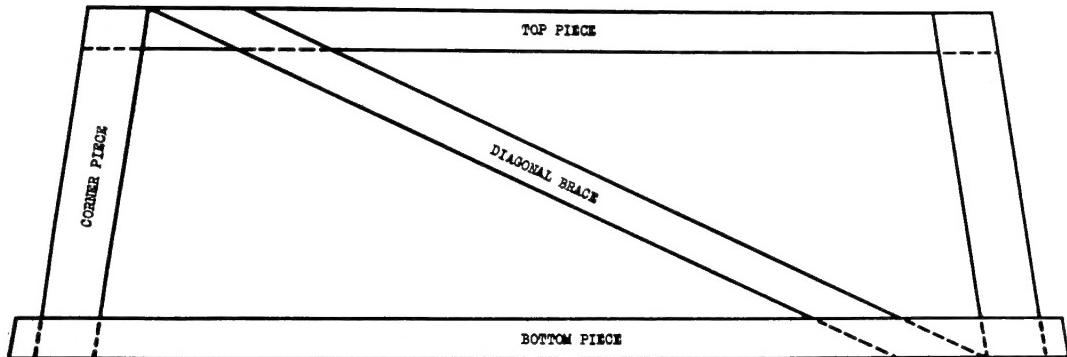


FIG. I

END SECTION OF THE CAGE

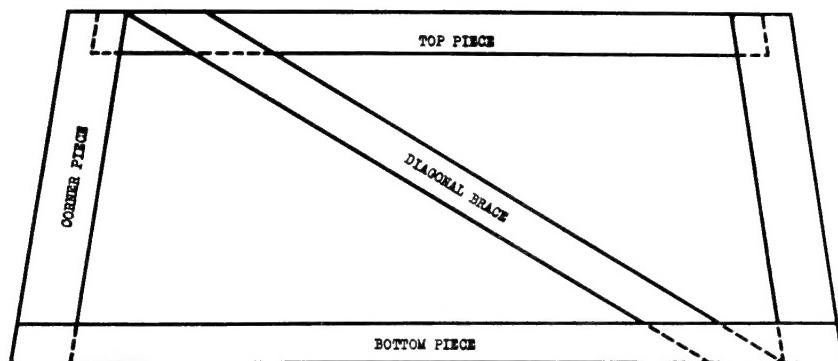


FIG. II





Figure 3. - Two of the cages in use on a greenhouse bench.

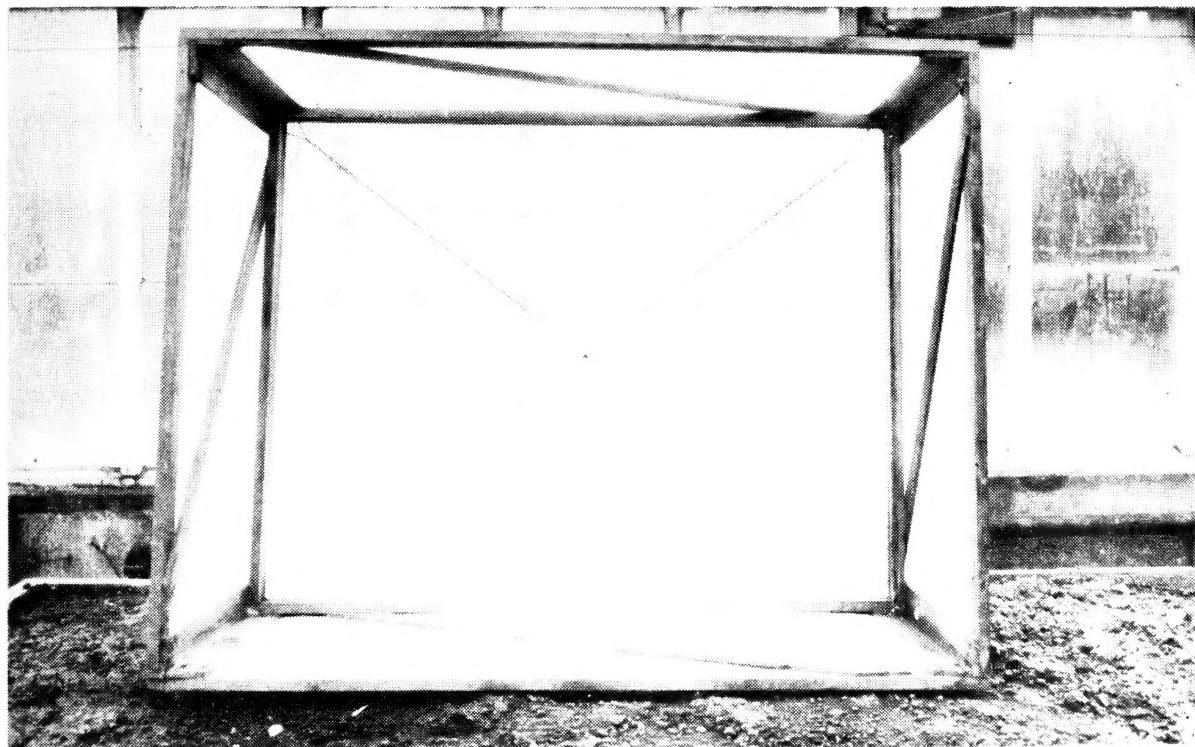


Figure 4. - A cage turned up to show details of construction.



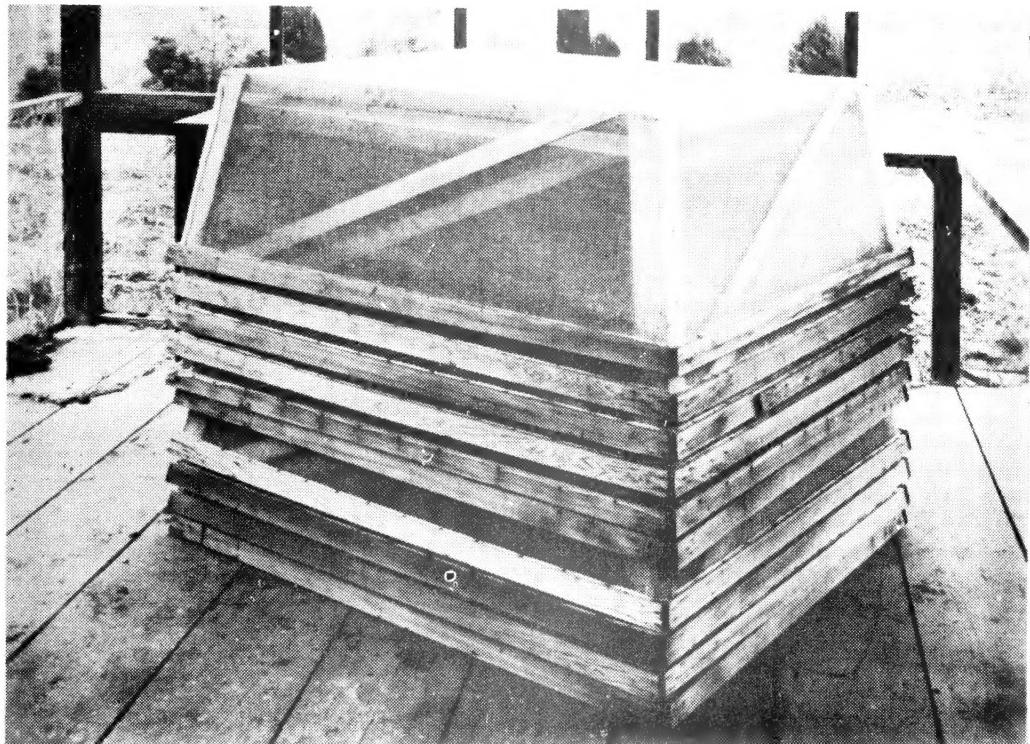


Figure 5. - Ten cages stacked in storage.

11

Spalding